

Defining Rigor in Family and Consumer Sciences

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Despite federal and state mandates that CTE programs, including FCS, offer rigorous curricula, there is currently no evidence of systematically defining rigor in the FCS discipline. Drawing from Biggs and Büchler (2007), who defined rigor for practice-based research in design, this paper argues that rigor originates from the practical-intellectual ecology and practice of the FCS discipline. Rigorous practice depends on the practitioner's critical studies surrounding the field, the ability to stir concern for the multidimensionality of issues, the exercise of intellectual dispositions, and the ability to promote praxis among students. Developing the practitioner's capacity for rigorous practice includes formation of a practical-intellectual community, promotion of practical reasoning skills, and acquisition of intellectual dispositions through pedagogical reasoning.

Since its inception, the discipline of Family and Consumer Sciences (FCS) has been concerned with intellectually examining quality of life issues in an effort to determine how to best serve individuals, families, and communities. Brown and Paolucci (1978) outlined the breadth of study necessary to fully explore the intent of the discipline so that the field could promote in others the ability to advocate for themselves, contribute to the common good and consequently include more citizens in the practice of democracy. Brown and Paolucci sought to define the field, in an attempt to unify the focus and efforts of home economics (now FCS) professionals. Their scholarship serves as the basis for much of current FCS scholarship, especially the FCS Body of Knowledge (Nickols et al., 2009). Brown (1985) continued to hone the profession's understanding of itself, as she offered an examination of the aims, disciplinary content, call to service, and qualities of our shared "practical intellectual" community. For Brown, the notion of "practical" was related to that espoused by Greek philosopher, Aristotle, connoting "dialogue," as opposed to the more recent notion that has to do with technique, usefulness, or efficiency. Thus, for Brown, a practical intellectual community was one that fostered intellectual dialogue among FCS professionals in an effort to develop a unified purpose and subsequently, a practice centered on that unified purpose.

Using the work of Brown and Paolucci (1978) and Brown (1985) as a framework, many FCS scholars have continued to explore the discipline's intellectual purposes in relation to the notions of community and family well-being in relation to professional obligations to serving others (Baldwin, 1995; Brown, 1995; Henry, 1996; Miststifer, 1996; Pendergast, 1998; Smith, 1998). Likewise, FCS teacher education scholars have extended the work of Brown and Paolucci, by exploring critical science perspectives related to research (Hultgren & Coomer, 1989) and curriculum (Johnson & Fedje, 1999), as well as practical reasoning development (Thomas & Laster, 1998). Despite these multiple efforts to examine and define the intellectual nature of the FCS discipline, there has not yet been an effort to define rigor in FCS. This is especially important in light of the federal mandate that Career and Technical Education (CTE) programs, including FCS, increase *rigor* across all CTE curricula (Public law 109-270 §2(2); Missouri DESE, 2008). The purpose of this paper is to examine the notion of *rigor* as it applies to the FCS discipline and its implications for FCS teacher education.

A Case for Rigor in Family and Consumer Sciences

The Carl D. Perkins Career and Technical Education Improvement Act of 2006 (Perkins 2006) seeks to

develop more fully the academic and career and technical skills of secondary education students and postsecondary education students who elect to enroll in career and technical education programs, by . . . promoting the development of services and activities that integrate *rigorous* and challenging academic and career and technical instruction, and that link secondary education and postsecondary education for participating career and technical education students (Public law 109-270 §2(2)).

Within this piece of legislation, Career and Technical Education (CTE) is expected to offer a “sequence of courses that provide individuals with coherent and *rigorous* content aligned with challenging academic standards” (Public law 109-270 §3(5-A-i)). According to the legislation, “coherent and *rigorous* content shall be determined by the State consistent with section 1111(b)(1)(D) of the Elementary and Secondary Education Act of 1965” (Public law 109-270 §8(e)).

Using Missouri as an example, the *Perkins [IV] Summary and Future Plans for Implementation* (2008) offers no clear definition of what *coherent and rigorous content* means but perpetuates the use of the phrase, as the state addresses the federal mandate to provide increased and documented academic and technical *rigor* in both secondary and postsecondary Missouri Career Education courses. According to the document, this will be accomplished by ensuring that Missouri CTE programs of study are comparable in coherence and rigor to other academic programs, demonstrated by coursework that is aligned with academic standards. Additionally, *coherent and rigorous* content is substantiated by the quality of core academic coursework taken by students. Finally, the Missouri statute outlines the need for professional development opportunities for both pre-service and in-service educators, administrators, and counselors that encourage the development of curricula that integrates *coherent and rigorous content* with academic standards.

For those familiar with the mandates of Perkins 2006, the language of these documents is familiar. As CTE teachers and teacher educators are called on to deliver rigorous content to secondary and post-secondary students, neither the federal nor the state documents (exemplified by Missouri) have clearly defined what *rigorous* content actually entails.

As states and local education agencies began implementation of the Carl D. Perkins Career and Technical Education Improvement Act of 2006, efforts were made to bring clarity to the notion of *rigor*. Speaking to the need to include more challenging content, Hoachlander (2007) implicitly defined rigor as problem solving, critical thinking, communications, and teamwork, achieved through authentic experiences with core subjects that were effectively combined with CTE content. Perhaps a more explicit example is Boggess’ (2007) definition of *rigor* as the quality of thinking . . . reflective thought. He continues with academic rigor is learning in which students demonstrate an in-depth mastery of challenging concepts through thought, analysis, problem solving, evaluation or creativity. The irony with either of these attempts to bring meaning to *rigor* for CTE professionals is that neither author demonstrated a *rigorous*, systematic attempt to define the term. In fact, a review of the literature has found no effort on the part of CTE scholars to determine what *rigor* means for the discipline.

FCS education content at both secondary and post-secondary levels must reflect the federal and state mandates for rigor as outlined in the respective pieces of legislation. Like CTE, there exists no explicit definition or application of *rigor* in the field of FCS, though a recent account of the applicability of the new Bloom's Taxonomy to FCS suggested its importance when aligning content to assessments (Pickard, 2007). More broadly, various FCS scholars—including those noted previously—speak to the importance of studied, scholarly efforts to better comprehend the impact of contextual factors (among other influences) affecting quality of life issues, which subsequently inform both disciplinary content and practice (Mitsifer, 1998; Nickols, Ralston, Anderson, Browne, Schroeder, & Thomas, 2009). Drawing from the work of Biggs and Büchler (2007) who examined *rigor* in the field of design, a framework for defining rigor emerges, which when applied to foundational FCS scholarship, substantiates a plausible definition of rigor for the FCS discipline.

Biggs and Büchler: Backdrop to Rigor in FCS

Biggs and Büchler (2007) examined the notion of rigor to shed light on the presumed differentiation of traditional academic research from practice-based research (typical for scholars in design) within higher education in the United Kingdom. The authors presented a rationale that defends practice-based research as a subcategory of academic research by centering their argument on the criteria for what comprises research, and giving particular attention to the criterion of rigor. Their etymological study found that the roots of the term *rigor* can be found not so much in the Latin “regidus,” but in the Old French “rigueur,” that is understood as “harshness” or “severity” (2007, p. 65). According to Biggs and Büchler (2007), rigor might be aptly understood as an unyielding severity of process that leads to valid conclusions.

Paired with Biggs and Büchler (2007) understanding that research is the pursuit of new information or knowledge, (2007), rigor in research can be found in the investigation itself—the *process* rather than the finding. Exemplified through the review of literature, typical to traditional academic research, Biggs and Büchler (2007) argued that a *rigorous review* must refer to the *process* of the review, as opposed to the technical exercise of writing the document. For these authors, the rigor of the literature review indicates a methodical and complete examination of the literature. Extending this line of thinking to practice-based research, the authors consequently surmised that in practice-based research, rigor lies in the *process* of the research—in the method utilized to answer a particular question. But does that necessarily equate process with practice? The authors contended that

a valid method provides a rigorous logical connection between the question and its answer, and it is that rigor that is more important in validating the outcome than the rigor of the competencies that are used to put the method into practice. . .the practitioner has to demonstrate . . .the validity of a particular method to deliver the research solution [answer to a question] (2007, p. 68).

For Biggs and Büchler, the concept of rigor can be understood “as a quality of argumentation that legitimizes an outcome. . .[which] requires that practice is the method. . .[and justifies] that a certain practice is necessary” (2007, pp. 68-69). The key to their argument rests in the determination of the appropriateness of the practice in offering a legitimate answer to the question at hand.

According to these scholars (Biggs and Büchler), validation of the research method or practice is context-specific and is guided by the disciplinary community. Recognizing the standard practice of peer review, Biggs and Büchler called attention to the authority granted the community to judge whether or not the method or practice is suitable for answering a particular question. Therefore, in practice-based research—just as in traditional academic research—the standards, authority and responsibility for evaluation that fall under the jurisdiction of the discipline contribute to the depth of rigor subsequently attributed to the practice.

Application of Biggs and Büchler to FCS

The applicability of Biggs and Büchler's (2007) work to FCS hinges on the notion of *practice* that is central to their own disciplinary understandings of practice-based research and also to the disciplinary understanding that FCS is a practice-based, practical-intellectual field. As FCS is expected to deliver a *rigorous* curriculum to secondary and post-secondary students, it is essential for the profession to clearly define what our disciplinary community believes to be a *rigorous* FCS curriculum. In this section, the application of Biggs and Büchler's (2007) work to FCS will be outlined by more fully exploring (1) the role of the FCS disciplinary community; (2) the substance of the FCS practitioner's practice; and (3) indications of rigor through FCS practice.

The Role of the FCS Disciplinary Community

With roots dating back 110 years to the formation of home economics beginning with the Lake Placid Conferences, the disciplinary field of FCS is a product of serious intellectual development, review, critique, and revision on the part of various FCS professionals, including secondary teachers, teacher educators, FCS administrators, extension agents, and content specialists in education, for-profit and not-for-profit industries. More recent intellectual work can be seen in the FCS Body of Knowledge (BOK) (Nickols, et al., 2009) as well as in the current national FCS education standards and competencies (National Association of State Administrators of Family and Consumer Sciences (NASAFACS), 2008-2018a). Within each of these bodies of work, expectations for both an integrated and synthesizing approach to the study of FCS are apparent. Combined, the BOK, FCS standards, and FCS competencies provide a holistic view of the FCS disciplinary purpose and its reflection in FCS curricula.

These current efforts that make explicit the knowledge pertinent to the discipline rest on previous scholarly efforts, including Brown and Paolucci (1978) and Brown (1985), but also the work of more current scholars (Eyre & Peterat, 1990; Fedje, 1999; Hultgren & Coomer, 1989; Thomas & Laster, 1998). Specifically noted by Henry (1996), the FCS discipline draws on a critical sciences perspective utilizing the modes of rationality including technical, interpretive, and emancipatory forms of knowledge first introduced by Jurgen Habermas in 1968. As such, FCS professionals are expected to communicate factual, objective information addressing human interaction and use of resources (technical), foster meaning making among individuals, families, and communities by promoting dialogue (interpretive), as well as identify and address inequalities among individuals and groups by developing the capacity of those with whom they work (emancipatory).

Brown's (1985) philosophical framework for critiquing the discipline argued for congruency among the purpose and aims, discipline, practice (service), and intellectual ecology of the discipline grounded equally upon all three modes of rationality: technical, interpretive, and emancipatory knowledge. For Brown, the FCS disciplinary intellectual ecology ought to be

socially constructed among FCS professionals, drawing on the human ability to examine, ponder, wonder, theorize, criticize, and imagine realities different from the present (1985, p. 10). It is the inferred professional dialogue, rather than the technical notion of “practice as doing,” that ultimately shapes this ecology as “practical-intellectual.” Consequently, it is this practical-intellectual ecology, drawing upon a critical sciences perspective central to the BOK, FCS education standards, and FCS competencies that guides professional practice and gives substance to and makes *rigorous* the disciplinary curricula for FCS secondary and post-secondary programs.

It is important to understand that FCS practice obliges professionals to not only serve individuals, families, and communities, but also to serve peers, through collaborative, collegial efforts (formal and less formal) that seek to strengthen, i.e., make *rigorous*, professional practice through peer critique. Current formal efforts to promote FCS program accreditation, FCS professional certification, and pre-professional certifications demonstrate the disciplinary interest to standardize professional practice. Likewise at the state levels, accreditation of both secondary and post-secondary FCS programs offers similar standardization. The bases for these formal examples of standardization of practice should rest upon demonstrated understandings and application of the critical sciences perspective exemplified in the BOK, FCS education standards, and FCS competencies. Beyond these formal examples, FCS professionals may additionally support and critique other programs through peer curriculum review as well as offering input through advisory boards. Such efforts are in addition to the process of peer review of scholarship that extends throughout the discipline. As noted by Nickols, et. al. (2009), it is important to the discipline to encourage scholarship that examines the BOK from a critical sciences perspective that will ultimately inform practice.

Because a critical sciences view of the FCS discipline seeks to foster emancipation through promotion of democratic ideals, professional practice, as captured in the mission of FCS education not only attends to meeting the technical needs of those served, but it also seeks to meet the interpretive and emancipatory needs of others, whereby FCS professionals will assist others in:

- Strengthening the well-being of individuals and families across the life span;
- Becoming responsible citizens and leaders in family, community, and work settings;
- Balancing personal, home, family, and work lives;
- Using critical and creative thinking skills to address problems in diverse family, community, and work environments; and
- Appreciating human worth and accepting responsibility for one's actions and success in family and work life (NASAFACS, 2008-18b, ¶ 5).

Mission-related statements such as these require that pre-professional and professional development fosters an ability to utilize critical sciences along with the FCS BOK, standards, and competencies to adequately address the interpretive and emancipative dimensions of the disciplinary mission, which have particular implications for the disciplinary content and perhaps more importantly, how it is communicated.

The Substance of the FCS Practitioner’s Practice

By asserting that *rigor* is found in the process or practice of the practitioner, Biggs and Büchler (2007) clarify the crucial function attributed to the practice of practitioners to promoting

rigorous curricula. And like Biggs and Büchler, who situate rigor in practice as opposed to standards and competencies), because the FCS profession understands that “the [FCS] national standards apply to all students. . . [and that] different students will achieve understanding in different ways” (NASAFACS, 2008-18b, ¶5), FCS is readily positioned to focus on the substance of the practitioner’s practice to ensure rigorous curricula that stem from the FCS standards and competencies.

Stemming from the critical sciences perspective, practitioners are obliged to present research-based content (reflecting technical knowledge), but must also examine this information and other FCS issues from multiple perspectives—giving voice to alternative viewpoints to facilitate mutual understandings among learners. By so doing, individuals might be empowered to advocate for themselves and their families. Commitment to educating students from both interpretive and emancipatory modes of knowledge demonstrates why rigor must be situated in practice (Eyre & Peterat, 1990; Topp, 1999). From Brown’s perspective, to do less threatens individual autonomy and community wellbeing:

When we confine our approach to those we serve to acting as technical experts on how to do this or that, we are upholding technical rationality as the mode of rationality [emphasis in original]. Unless we recognize that hermeneutic [interpretive] rationality and emancipative rationality are to promote reflective understanding and moral direction in the goals sought and critical awareness of existing social beliefs and practices of political-moral concern, we inhibit the development of autonomous persons. This reflects not only in the persons whom we serve directly but also in these same persons’ practices in promoting or hindering the development of others (1985, p. 42).

A practitioner’s ability to foster reflective understanding and critical awareness warrants a change in practice. Transmitting complex series of facts to students must be informed by concern for an integrative rather than fragmented approach to understanding quality of life issues and well-being: practice must be approached as an intellectual endeavor. This shift is necessary if the FCS discipline is to grow beyond the historic inclination to uphold the technical mode of rationality.

The ability of FCS practitioners to pursue practice as an intellectual endeavor requires a change in pedagogical thinking. Pedagogy, as defined by the Oxford English Dictionary (2011), relates only to the practice or art of teaching. Often understood as the practice of teaching children, the focus on children, while essential, ignores a practitioner’s responsibility to the practice of teaching itself, and the necessity of the practitioner’s intellect reflected through his or her practice. While Biggs and Büchler understand research as a pursuit of new information or knowledge (2007), it might also be reasoned that research—typically the domain of higher education—could be likened to the study of particular subjects within the secondary education environment. Thus, the substance of the FCS practitioner’s practice develops from his or her comprehensive study surrounding the FCS content to be taught, bringing rigor to his or her practice.

Indications of Rigor in FCS Practice

While implicitly the Perkins 2006 legislation suggests that rigor in CTE content is achieved by integrating math, science, English, and social studies, the notion to insert core subjects *and stir*, is at once, both overly simplistic and intriguing. With the understanding that

rigor is achieved through practice, it becomes clear that by only inserting core subjects will not result in added rigor in FCS. The FCS practitioner's ability to facilitate study of quality of life issues pertaining to individuals, families, and communities through a humanistic lens is a good beginning. Additionally, the practitioner's ability to draw on his or her own studies of the issue will permit the *stirring* of different ideas. Referring back to the days of stitching and stirring, the FCS practitioner's ability to foster in students the capacity to *mix, collect, fold, connect*, or even *agitate* the group's thinking might be an appropriate use of these verbs for 21st century FCS curricula. In addition to the depth and breadth of the content—*what* is thought about—consideration must also be given to *how* the content is thought about when considering the rigor of the FCS discipline.

Costa and Liebmann (1997) make explicit the importance of considering *how* content is thought about. Calling attention to the importance of teaching process skills to students, the authors outline the relationship between process skills, larger operations encompassing multiple skills, which then become habituated over time, resulting in a series of dispositions adopted by the individual. While much attention is given to fostering in students dispositions for thinking, limited attention is given to fostering in teachers these same dispositions. How an FCS practitioner demonstrates to students persistence, empathy, metacognition, accuracy, understanding and application of historical perspective, creativity, collaborative thinking, risk taking, curiosity, questioning, and even a sense of humor through his or her own practice will likely transfer to student thinking (Costa & Liebmann, 1997). For FCS practitioners, it is important to note that many of the dispositions support a critical sciences perspective of the field. For example, developing a curriculum that fosters both interpretive and emancipatory modes of knowledge would rely on the ability of both practitioner and students to listen, question, think cooperatively, take risks, examine historical precedent, offer creative insights, exercise precision and accuracy in thinking, all in an effort to develop mutual understanding of an FCS issue to better address the common good of the community (Topp, 1999; Williams, 1999).

The notion of the common good is central to the critical sciences perspective in FCS. It is not enough for FCS practitioners to teach *about* the social injustices that exist—it is Brown's (1985; 1995) intent that FCS becomes a vehicle for social change through curricula that develops the capacity of individuals, families, and communities to determine what the common good is for themselves and to work toward that end. Taken as a whole then, rigorous practice of an FCS practitioner is dependent on his or her comprehensive, critical sciences-based, study surrounding the field, an ability to *stir* in students concern for the multidimensional nature of FCS issues, the exercise of dispositions to guide how the content is thought about, and an ability to instill the capacity to change the status quo. From a critical sciences perspective, FCS practitioners seek to move their students and themselves toward *praxis*—action grounded in reflection for the purpose of social transformation (Foster, 1986; Stevens, 2002). And it is this sort of collaboration among peers and fellow citizens—that captures Brown's essence of the FCS practical-intellectual ecology.

Implications for FCS Teacher Education

With the mandate by Perkins 2006 for “coherent and *rigorous*” curricula at secondary and post-secondary institutions, it is crucial for FCS teacher educators to ensure that initial certification programs prepare pre-service teachers capable of exercising rigor in their respective practices. This paper argues that rigor originates from the practice and practical-intellectual ecology of the FCS discipline, and further proposes that teacher educators ought to focus

specifically on (1) the formation of a practical-intellectual community; (2) the development of comprehensive, humanistic studies surrounding FCS; and (3) the advancement of practitioner intellectual dispositions, all in an effort to develop the capacity for rigorous practice. By so doing, not only will the FCS discipline be positioned to meet the Perkins 2006 mandate, but it will also more clearly situate itself among the other disciplines, demonstrating congruity among its aims and purposes, discipline, practice, and practical-intellectual ecology—thus addressing the shortcomings of the FCS discipline identified 25 years ago by Marjorie Brown (1985).

As noted in the FCS Body of Knowledge, fostering community vitality is an essential aspect of FCS practice (Nickols, et al., 2009). At the post-secondary level, demonstrating to students how to form community is important, if they are to understand the value of the discipline's practical-intellectual ecology. Inculcating within students the sense of unity and its rationale must be deliberate. From the perspectives of DeMerchant and Johnson (1995), the sustainability of the FCS profession depends upon the ability to foster community among colleagues and students—the next generation of professionals. Collaborative in nature, the practical-intellectual community needs to promote inclusion and provide a sense of intellectual safety, where risk-taking is both modeled and encouraged. Because a community thrives when its members share a common interest, concern, and activity (Brown, 1995), a *practical-intellectual* community is sustained by *rigorous* study of issues pertinent to its members. Such studies provoke discussion around concerns that are of importance to individuals typically marginalized through status quo practices, and serve to generate emancipative possibilities for change.

The notion of study, suggests, at a minimum, the acquisition of knowledge. In Family and Consumer Sciences, a service-oriented profession, the purpose of knowledge acquisition is to address what Brown and Paolucci (1978) referred to as *practical problems* that are best understood through contextual examination. And unlike theoretical problems that typically are addressed within a particular discipline, examination of practical problems is more likely to cross disciplines (Schulman, 2004b) necessitating the need for a concentrated, multidisciplinary investigation surrounding the issue(s). Beyond the multidisciplinary lenses, Brown and Paolucci (1978), argued that study in a practical-intellectual field, such as FCS, requires study across multiple theoretical frameworks as well, including empirical, phenomenological, semantic, and normative theories. This sort of intellectual preparation is foundational to the process of *practical reasoning* which Brown and Paolucci (1978) argued is essential to resolving practical problems. Based in the interpretive mode of rationality, practical reasoning can be differentiated from mere decision making (technical rationality), in that it requires the *social* construction of judgments based on morally defensible grounds (Brown & Paolucci, 1978, pp. 26-29). It is through the development of practical reasoning that FCS practitioners are prepared to explore emancipative dimensions of knowledge that substantiate *praxis* within the field.

The final consideration for developing the capacity for rigorous practice links FCS practical reasoning with the acquisition of intellectual dispositions, hinging on Schulman's notion of *pedagogical reasoning* (2004a, pp. 233-241). In particular, it is Schulman's conception of both comprehension and transformation—the initial two processes of pedagogical reasoning—that are most relevant to appropriating rigor to one's practice. Schulman's concept of comprehension recognizes the need to study widely and deeply, as practitioners must comprehend content both within and beyond the discipline and that they should be able to demonstrate their understandings in multiple ways (2004a). Like Brown and Paolucci (1978), Schulman (2004a) believed transformation rests on the expectation that the practitioner is able to

critically interpret content and develop relationships between it and the lived experiences of students analogically, metaphorically, and through various explanations and examples (2004a). It is only after such transformation of knowledge that the practitioner should consider which modes of communication are most suitable for respective audiences. The order that Schulman (2004a) attributes to pedagogical reasoning gives credence to the previously stated concern surrounding the term pedagogy, which is often misunderstood as having more to do with the *method of teaching children*, rather than focusing on the *intellectual nature of teaching itself*.

By suggesting that a practitioner is responsible for understanding content from multiple perspectives and must likewise develop relationships between the content and student experiences, pedagogical reasoning and the notion of transformation subsequently lead to the question of *how* the content is thought about. It is Schulman's (2004b) perspective that practitioners must engage with *professional learning principles* that reflect Costa and Liebmann's (1997) dispositions introduced previously. These principles address *how* the practitioner engages with the content and include reflection, collaboration, and activity (i.e. designing, debating, writing, investigating, dialoging, questioning, etc.). Key to the principles is the underlying belief that learning ought to be active rather than passive and experienced within a *community of learners* (Schulman, 2004b)—emphasizing the importance of the practical-intellectual ecology of the FCS discipline. It is these sorts of learning principles that support the critical sciences perspective in FCS and subsequently develops the capacity for rigorous practice in FCS.

Summary

This effort to systematically define rigor is an attempt to provide substance to this elusive notion that recurs—without definition—throughout both federal and state CTE legislation. While Missouri, for example, aims to “ensure that students who participate in CTE programs are taught to the same *coherent and rigorous* content aligned with challenging academic standards *as are taught to all other students*” [emphasis added] (Missouri Department of Elementary and Secondary Education, Division of Career and Technical Education, p. 6), it simultaneously suggests that CTE disciplines do not currently offer coherent and rigorous curricula to their students. In relation to FCS, the findings presented suggest otherwise: the FCS discipline has the capacity to exercise rigorous practice that will strengthen the learning outcomes of secondary and post-secondary students.

By drawing on the work of Biggs and Büchler (2007) who examined the notion of rigor as it applied to their concerns for practice-based research in the field of design, it was determined that rigor is found in the research process and consequently the practice of a discipline. For these authors, it is understood that rigorous practice is context-specific, and rests in the validity determined by the appropriateness of the practice or method to addressing an issue or answering a particular question. Additionally, the authors contend that validation of rigorous practice is determined, standardized, and otherwise evaluated by the disciplinary community, who can best judge the appropriateness of the practice or method for addressing the problem or question.

When applied to the discipline of family and consumer sciences, the equivalency between Biggs and Büchler's (2007) understanding of practice and the FCS understandings of both the practical-intellectual ecology and practice-based nature of the field become clear. Stemming from Biggs and Büchler's (2007) conclusions, parallels are drawn to the FCS discipline. It is argued that rigor not only originates from the discipline's practical-intellectual ecology grounded in critical sciences perspectives, but also from the substance of the FCS practitioner's practice

including his or her critical studies surrounding FCS, the ability to stir concern for the multidimensionality of issues, the exercise of intellectual dispositions, and the critical sciences-based capacity to foster *praxis* among students.

As federal and state mandates suggest that secondary and post-secondary CTE programs must offer rigorous curricula, it is crucial for FCS teacher educators to ensure that initial certification programs educate individuals capable of rigorous practice. Consequently, it is recommended that post-secondary programs include formation of a practical-intellectual community that promotes examination of practical problems pertinent to FCS and that new practitioners develop the mindset for practical reasoning necessary for addressing such problems. Understanding that the relationship between practical reasoning and acquisition of intellectual dispositions hinge on pedagogical reasoning, it is likewise recommended that FCS pedagogy fosters an understanding of the primacy of the intellectual nature of teaching itself.

While FCS practitioners can agree that fulfilling the spirit of Perkins 2006 is important, perhaps more significant are the implications for the FCS discipline itself. By focusing on the critical sciences perspectives central to FCS that were espoused by Marjorie Brown 25 years ago and echoed by many other scholars since that time, the FCS discipline is positioned to demonstrate the congruity among its aims and purpose, discipline, practice, and practical-intellectual ecology that eluded the profession since its inception 101 years ago. As the 21st century unfolds, it would be appropriate for FCS to be recognized as the discipline that *stirs* intellectual concern for quality of life issues that subsequently address inequalities among individuals, families, and communities, thus realizing the call for *praxis* made by Brown, Paolucci, and others.

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